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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,101	12/02/2003	Jens Barrenschcen	J0658.0017	4396
38881 7590 06/18/2007 DICKSTEIN SHAPIRO LLP 1177 AVENUE OF THE AMERICAS 6TH AVENUE NEW YORK, NY 10036-2714			EXAMINER BAE, JI H	
			ART UNIT 2115	PAPER NUMBER
			MAIL DATE 06/18/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/727,101	BARRENSCHEEN ET AL.	
	Examiner	Art Unit	
	Ji H. Bae	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4-4-2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 4 April 2007 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. The European Search Report provided by the applicant does not satisfy the requirement for a concise statement of relevance because the search report is in German and no English translation has been provided. It has been placed in the application file, but the information referred to therein has not been considered.

Response to Arguments

Applicant's arguments filed on 4 April 2007 have been fully considered but they are not persuasive.

Regarding applicant's amendments, the examiner notes that the applicant has amended the claims to use "at least one of" instead of "and/or" in listing the functionality of the program-controlled unit and power chip in the independent claims. The examiner submits that a reference may be considered to anticipate the claim even if the reference only teaches one of the listed functions in the claim. For example, independent claim 1 recites a program-controlled unit that may perform at least one of a number of listed functions. In order to anticipate the claim, a reference need only teach one of the listed functions, since the claim language does not require the program-controlled unit to be able to perform all of the listed functions. The examiner notes that in rejecting claims 1 and 15 in the previous office action, the applicant

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made no objection to the fact that the cited reference [Clemente] did not teach all of the listed functions in the claims.

In light of this, it is the view of the examiner that applicant's amendments do not further define over the prior art, since the additional limitations introduced by the applicant do not remedy the fact that a reference need only teach at least one of the listed functions in the claim.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 17 and 18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2-4, 6 and 23 of copending Application No. 10/727,102. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 2-4, 6 and 23 of Application No. 10/727,102 together substantially recite the same subject matter of claims 17 and 18.

Regarding claims 17 and 18, Application No. 10/727,102 recites:

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a microsecond bus controller configured to drive loads connected to a plurality of power chips [claim 23, first semiconductor chip, also claim 2, program controlled unit];

a single transmission clock signal line configured to transmit a transmission clock signal [claim 4];

a single control line which serially transmits, in time-division multiplex at the rate of the transmission clock signal, load control data and control data to the power chips [claim 4, second data line, claim 23, time division multiplexing]; and

a chip select line for each one of the plurality of power chips, wherein each of the chip select lines is configured to select the respective power chip to which the single control line transmits the load control data and control data [claim 4, chip select line],

wherein load control data output within a single time window can be intended for more than one of the power chips [claim 6, time windows, claim 23, first and second portion of data].

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, 8, 11, 12, and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Clemente, U.S. Patent No. 4,786,826.

Regarding claim 1, Clemente teaches:

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An arrangement including a program-controlled unit [Fig. 1, low voltage control IC] and a power chip connected to it [high voltage PIC], wherein

the power chip being additionally connected to electric loads [col. 1, lines 15-17] and driving these electric loads in accordance with timing input to it by means of load control data [col. 3; lines 28-32, variation of duty cycle of power switching device, col. 3, lines 62-63],

the program-controlled unit transmitting to the power chip the above mentioned load control data and control data controlling the power chip [see rejection of previous limitation], and

the power chip transmitting to the program-controlled unit diagnostic data by means of which states prevailing in the power chip or events occurring are represented [status lines and temperature, col. 3, lines 50-63], and

wherein the program-controlled unit, by transmitting corresponding control data to the power chip [control lines 22 controlling power switching device 28, col. 3, lines 28-32], can input the behavior of the output drivers of the power chip [power switching device and output terminals 14 and 15, col. 3, lines 10-16].

Claims 7, 8, 11, 12, and 14-16 are rejected on similar grounds.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission of prior art [AAPA] over Chengson et al., U.S. Patent No. 5,811,997.

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Regarding claims 2 and 3, AAPA teaches the arrangement of claim 1, specifically a program-controlled unit and a power chip connected to it, wherein

the power chip being additionally connected to electric loads and driving these electric loads in accordance with timing input to it by means of load control data [applicant's specification, "Background of the Invention", paragraphs 2],

the program-controlled unit transmitting to the power chip the above mentioned load control data and control data controlling the power chip [paragraph 2], and

the power chip transmitting to the program-controlled unit diagnostic data by means of which states prevailing in the power chip or events occurring are represented [paragraph 2], and

wherein the program-controlled unit, by transmitting corresponding control data to the power chip, can input the behavior of the output drivers of the power chip [paragraphs 4, 5].

AAPA does not explicitly teach whether the diagnostic data output drivers operate in accordance with push/pull or open drain based on transmission of corresponding control data to the power chip.

Chengson teaches a system for selectively enabling either a push/pull mode or open drain mode in an output driver of an integrated circuit [col. 2, lines 58-64] based on the transmission of control data [mode bits, col. 3, lines 2-4].

It would have been obvious to one of ordinary skill in the art to combine the teachings of AAPA with Chengson by modifying AAPA to selectively enable a push/pull mode or open drain mode for the diagnostic data output drivers based on control data, as taught by Chengson. Chengson teaches that prior art solutions did not adequately address the need for output drivers to be used in a variety of situations. The teachings of Chengson would improve the system of AAPA by providing an output driver circuit that is configurable for a variety of applications [col. 2, lines 37-47].

Regarding claim 5, AAPA teaches the controlling of the behavior of the load control data output drivers of the power chip by transmitting control data to the power chip from the program-controlled unit [specification, paragraphs 4, 5].

Regarding claim 6, AAPA teaches controlling the timing of processes running in the load control data output drivers by transmitting control data to the power chip from the program-controlled unit [specification, paragraph 10].

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA/Chengson as applied to claim 2 above, and further in view of Risinger, U.S. Patent No. 5,537,070.

Regarding claim 4, AAPA/Chengson teaches the arrangement of claim 2, but does not teach controlling how steep the edges of the signals output by the diagnostic data output drivers should be based on control data transmitted to the power chip from the program-controlled unit.

Risinger teaches an output driver circuit with slew rate control. The output driver circuit is configured to control the steepness of the edges of the signals output by the driver [Fig. 4, col. 5, line 52 to col. 6, line 5].

It would have been obvious to one of ordinary skill in the art to combine Risinger with AAPA/Chengson by further modifying the transmitted control data [mode bits] to specify slew rate control of the output driver, using the circuitry taught by Risinger. Chengson teaches an output driver circuit capable of selectively enabling either a push/pull mode or open drain mode, while Risinger teaches that the output driver is an open drain transistor [abstract]. The teachings of Risinger would improve the open drain output driver of AAPA/Chengson by reducing the propagation delay through the driver [col. 2, lines 56-61], as well as noise and switching transients [col. 6, lines 2-5].

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Boggs et al., U.S. Patent No. 6,317,458 B1¹.

Regarding claim 9, AAPA teaches the arrangement of claim 1, but does not teach the transmitting of control data to the power chip to specify what states or events have to be considered as abnormal states or events.

Boggs teaches a system for an output driver that is capable of detecting for various electrical faults in the load being driven [col. 1, lines 43-55, col. 4, lines 45-50]. In particular, Boggs teaches that a current range for a short circuit trip point is a function of a selected programmable current range [col. 4, lines 56-61].

It would have been obvious to one of ordinary skill in the art to combine Boggs with AAPA by modifying the program-controlled unit of AAPA to specify control data to program a current range for detecting a short circuit, as taught by Boggs. Boggs and AAPA are both directed towards output drivers that are capable of detecting operating conditions in a load driven by the an output driver. AAPA teaches that overcurrent and excessive temperatures are two conditions that may be monitored for. The teachings of Boggs would improve AAPA by allowing AAPA to also determine short circuit or open circuit conditions [col. 4, lines 45-47].

Regarding claim 10, Boggs teaches that the abnormal conditions take into consideration the behavior of the loads.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Guerra, European Patent Application Publication No. 418,665 A1².

Regarding claim 13, AAPA teaches the arrangement of claim 1, but does not teach outputting diagnostic data following a request by the program-controlled unit.

¹ Applicant-cited reference

Guerra teaches a computer that controls a power supply circuit, and is capable of determining faults in the load being driven by the circuit. Guerra further teaches that the computer is capable of interrogating the circuit in order to determine the fault [pp. 4, lines 35-42].

It would have been obvious to one of ordinary skill in the art to combine the teachings of AAPA with Guerra by modifying the program-controlled unit of AAPA [computer in Guerra] to interrogate the power chip [power supply circuit in Guerra] for fault conditions, as taught by Guerra. Both AAPA and Guerra teach processor controlled power supply system capable of detecting faults in a load driven by the power supply system. AAPA teaches that overcurrent and excessive temperatures are two conditions that may be monitored for. The teachings of Guerra would improve AAPA by allowing AAPA to also determine short circuit or open circuit conditions [pp. 4, lines 51-55].

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

² Applicant-cited reference

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ji H. Bae whose telephone number is 571-272-7181. The examiner can normally be reached on Monday-Friday, 10 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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